REMARKS

By the present amendment, claims 40, 41, 43, 44, and 46 to 49 are pending in the application. Claims 40 and 41 are the independent claims.

Claim Amendment

Independent claim 41 has been amended to read: "wherein a hydrogenolysis catalyst for formic ester other than copper chromite ...".

Support for this amendment may be found in the specification, e.g., at page 5, lines 12 to 21 which discloses hydrogenolysis catalysts used in the present invention. Copper chromite is not disclosed as used in the present invention.

Cu/CrO_3 disclosed at page 5, line 17 contains CrO_3 or chromic trioxide, which is Cr in the +6 oxidation state. This is not copper chromite.

§102

Claims 41, 44, 46 and 49 were rejected under 35 U.S.C. §102(b) as being unpatentable over U.S. Patent No. 5,384,335 to Tierney et al.

This rejection, as applied to the amended claims, is respectfully traversed.

Tierney states that "The carbonylation step is followed by hydrogenolysis of the formate on the surface of copper chromite" (column 3, lines 33-35), and "copper chromite as the hydrogenolysis catalyst" (column 4, lines 45-46). Further, the Examples in Tierney use only copper chromite as a hydrogenolysis catalyst. Thus, Tierney does not disclose or suggest using a hydrogenolysis catalyst other than copper chromite in a process for producing methanol from carbon monoxide and hydrogen through the formation of a formic ester.

The present invention does not use a copper chromite hydrogenolysis catalyst.

It is therefore submitted that independent claim 41, and claims 44, 46 and 49 dependent thereon, are patentable over U.S. Patent No. 5,384,335 to Tierney et al.

§103

Claims 40, 43, 47 and 48 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,384,335 to Tierney et al. in view of U.S. Patent No. 4,939,292 to Elliott et al.

In the invention of claims 40, 43, 47 and 48, formic ester, as an intermediate, is formed in the presence of an alkali metal-type catalyst other than an alkali metal oxide, or a combination of an alkaline earth metal-type catalyst and an alkali metal-type catalyst other than an alkali metal oxide (see Examples 1-17). The resultant formic ester is hydrogenolyzed to produce methanol by a catalyst containing Cu simultaneously with Mn and/or Re, which is coexistent with the alkali metal-type catalyst or the combination of alkaline earth metal-type catalyst and alkali metal-type catalyst (see Examples 18-24).

Tierney et al. (US 5,384,335), which is discussed above in respect to the rejection of claims 41,44,46 and 49 under 35 U.S.C. §102(b), also relates to methanol synthesis.

On the other hand, Elliott et al. (US 4,939,292) cited by the Office Action relates to synthesis of esters, as the Office Action has indicated. Thus, the Cu/Re catalyst in Elliott is used for the synthesis of esters, such as formic ester.

Accordingly, it could not have occurred to one skilled in the art to replace the copper chromite catalyst, as a hydrogenolysis catalyst, of Tierney with the Cu/Re catalyst, i.e., an ester synthesis catalyst, of Elliott. In other words, the invention of claims 40, 43, 47 and 48 of the present application would not have been obvious to those skilled in the art, in

view of Tierney et al. and Elliott et al. because there is no motivation, teaching or suggestion to use the ester synthesis catalyst of Elliott as a hydrogenolysis catalyst in Tierney.

It is therefore submitted that independent claim 40, and claims 43, 47 and 48 dependent thereon, are patentable over U.S. Patent No. 5,384,335 to Tierney et al. in view of U.S. No. 4,939,292 to Elliott et al.

CONCLUSION

It is submitted that in view of the present amendment and foregoing remarks, the application is now in condition for allowance. It is therefore respectfully requested that the application, as amended, be allowed and passed for issue.

Respectfully submitted,

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